



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for

Yarmouth Water Department

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Yarmouth Water Department
<i>PWS Address</i>	99 Buck Island Road
<i>City/Town</i>	West Yarmouth, Massachusetts 02673
<i>PWS ID Number</i>	4351000
<i>Local Contact</i>	Danny J. Mills
<i>Phone Number</i>	(508) 771-7921

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate Best Management Practices (BMPs) and drinking water source protection measures.

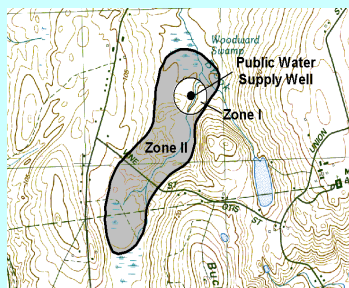
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 1: Description of the Water System

Zone II #: 157

Susceptibility: High

Well Names	Source IDs
Well #1	4351000-02G
Well #2	4351000-03G
Well #3	4351000-04G
Well #13	4351000-13G
Well #14	4351000-14G
Well #17	4351000-17G
Well #18	4351000-18G
Well #19	4351000-19G
Well #20	4351000-20G
Well #23	4351000-23G
Well #24	4351000-24G

Zone II #: 168

Susceptibility: High

Well Names	Source IDs
Well #1M	4351000-01G

Zone II #: 169

Susceptibility: Moderate

Well Names	Source IDs
Well #21	4351000-21G
Well #22	4351000-22G

Zone II #: 170

Susceptibility: Moderate

Well Names	Source IDs
Well #10	4351000-11G
Well #11	4351000-12G

Zone II #: 171

Susceptibility: High

Well Names	Source IDs
Well #15	4351000-15G
Well #16	4351000-16G

Zone II #: 172

Susceptibility: High

Well Names	Source IDs
Well #6	4351000-07G
Well #7	4351000-08G
Well #8	4351000-09G
Well #9	4351000-10G

Zone II #: 173

Susceptibility: Moderate

Well Names	Source IDs
Well #4	4351000-05G
Well #5	4351000-06G

The Yarmouth Water Department (Yarmouth) maintains and operates twenty four public water supply sources. Yarmouth's sources are located within the Cape Cod basin. The wellhead protection areas for Well #1 (02G), Well #2 (03G), Well #3 (04G), Well #13 (13G), Well #14 (14G), Well #17 (17G), Well #18 (18G), Well #19 (19G), Well #20 (20G), Well #23 (23G), and Well #24 (24G) is located in Yarmouth, with a small portion extending into Barnstable; the wellhead protection areas for Well #1M (01G), Well #4 (05G) and Well #5 (06G), Well #10 (11G) and Well #11 (12G), and for Well #15 (15G) and Well #16 (16G) are located entirely in Yarmouth; the wellhead protection areas for Well #21 (21G) and Well #22 (22G), and for Well #6 (07G), Well #7 (08G), Well #8 (09G), and Well #9 (10G) are located in Yarmouth, with a very small portion extending into Dennis. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map to view the boundaries of the Zone IIs.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

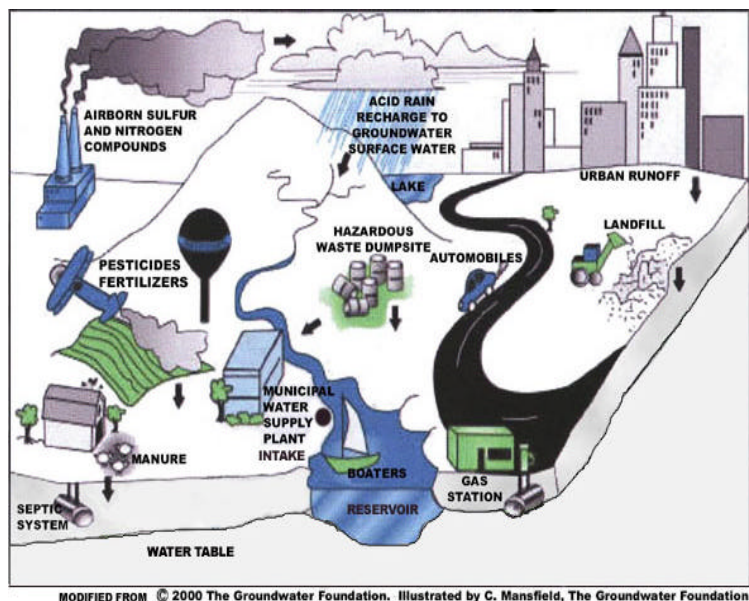


Section 2: Land Uses in the Protection Areas

The Zone IIs for Yarmouth are primarily a mixture of forest and residential land uses, with a small portion consisting of recreational, commercial and industrial activities (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Hazardous Materials Storage and Use
3. Residential Land Uses
4. Transportation Corridors
5. Oil or Hazardous Material Contamination Sites
6. Comprehensive Wellhead Protection Planning



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Figure 1: Sample watershed with examples of potential sources of contamination

The overall ranking of susceptibility to contamination for the wellhead protection areas for: Higgins Crowell Well (02G), Well #2 (03G), Well #3 (04G), Well #13 (13G), Well #14 (14G), Well #17 (17G), Well #18 (18G), Well #19 (19G), Well #20 (20G), Well #23 (23G), Well #24 (24G), Well #15 (15G), Well #16 (16G), Well #1M (01G), Well #15 (15G), Well #16 (16G), Well #6 (07G), Well #7 (08G), Well #8 (09G), and Well #9 (10G) is high based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2. The overall ranking of susceptibility to contamination for the wellhead protection areas for: Well #10 (11G), Well #11 (12G), Well #21 (21G), Well #22 (22G), Well #4 (05G) and Well #5 (06G), is moderate, based on the presence of at least one moderate threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone Is – The Zone I for all of Yarmouth's wells is a 400 foot radius around each wellhead. Massachusetts drinking water regulations (310 CMR 22.00) require public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply

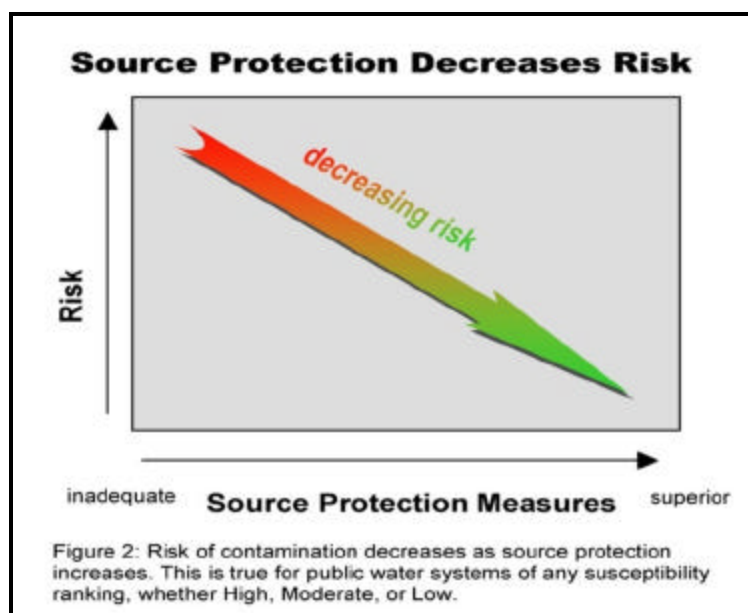
activities such as homes and public roads. The Zone I for: Well #1M (01G) contains a portion of Union Street and residential activities; Well 15 (15G) and Well 16 (16G) contain a portion of a gravel pit operation; Well #21 (21G) contains a transmission line right-of-way; Well #9 (10G) contains residential activities; Well #6 (07G) contains local roads and residential activities; Well #7 (08G) contains local roads; Well #17 (17G) contains a small portion of residential activities; Well #3 (04G) contains a portions of the Mid Cape Highway (Route 6); and, Well #1 (02G) contains a portion of Higgins Crowell Road.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Hazardous Materials Storage and Use – Many large and small businesses use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground Storage Tanks

(Continued on page 7)



Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II #	Potential Contaminant Sources*
Agricultural				
Fertilizer Storage or Use	1	M	168, 172	Leaks, spills, improper handling, or over-application of fertilizers
Pesticide Storage or Use	1	H	168, 172	Leaks, spills, improper handling, or over-application of pesticides
Commercial				
Airports	1	H	157	Spills, leaks, or improper handling of fuels, de-icers, salt, and other hazardous chemicals
Car/Truck/Bus Washes	1	L	157	Improper management of vehicle wash water; soaps; oils; greases; metals; salts
Body Shops	2	H	157, 171	Improper management of vehicle paints, solvents, and primer products
Gas Stations	7	H	168, 171, 172	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	1	H	171	Automotive fluids and solvents: spills, leaks, or improper handling
Bus and Truck Terminals	3	H	157, 171	Spills, leaks, or improper handling of fuels and maintenance chemicals
Dry Cleaners	1	H	171	Spills, leaks, or improper handling of solvents and wastes
Golf Courses	3	M	157, 171, 172	Over-application or improper handling of fertilizers or pesticides
Medical Facilities	1	M	171	Spills, leaks, or improper handling or storage of biological, chemical, and radioactive wastes
Sand and Gravel Mining/ Washing	1	M	171	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial				
Asphalt, Coal Tar, And Concrete Plants	1	M	172	Spills, leaks, or improper handling or storage of hazardous chemicals and wastes
Residential				
Fuel Oil Storage (at residences)	100+	M	all	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	100+	M	all	Pesticides: over-application or improper storage and disposal
Septic Systems/Cesspools	100+	M	all	Hazardous chemicals: microbial contaminants, and improper disposal

Land Uses	Quantity	Threat	Zone II #	Potential Contaminant Sources*
Miscellaneous				
Aboveground Storage Tanks	10	M	157, 171	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	numerous	L	all	Microbial contaminants
Fishing/Boating	numerous	L	172, 173	Fuel and other chemical spills, microbial contaminants
Large Quantity Hazardous Waste Generators	1	H	157	Spills, leaks, or improper handling or storage of hazardous materials and waste
Oil or Hazardous Material Sites	5	--	157, 170, 171, 172, 173	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Schools, Colleges, and Universities	2	M	157, 172	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	3	M	157, 171	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/Retention Basins	100+	L	all	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way	1	L	157, 168, 169	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	1	M	157, 171, 172	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	25	H	157, 171, 172	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generators	6	L	157, 171	Spills, leaks, or improper handling or storage of hazardous materials and waste
Waste Transfer/Recycling Station	1	M	171	Improper management, seepage, and runoff of water containing waste materials
Wastewater Treatment Plant/Collection Facility/Lagoon	1	M	171	Improper handling or storage of treatment chemicals or equipment maintenance materials; improper management of wastewater

Table 2 Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.

* **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

(USTs) and Aboveground Storage Tanks (ASTs). Although many facilities within Yarmouth's Zone IIs use BMPs, hazardous materials and waste can be unexpectedly released through spills, leaks or improper handling or storage, and become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on BMPs for protecting water supplies, and encourage them to use BMPs for handling, storing and disposing of hazardous waste. Distribute the fact sheet "Businesses Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business uses.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure "Industrial Floor Drains" for more information.

3. Residential Land Uses – Approximately 50% of the combined Zone IIs consist of residential areas, of which a portion is served by private septic systems, with the remainder being served by municipal sewerage. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet "Residents Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

4. Transportation Corridors - Transportation corridors and other paved and unpaved local roads cross through the water supply protection areas. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination.

Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins.

Transportation Corridor Recommendations:

- ✓ Wherever possible, ensure that drains discharge stormwater outside of the Zone I.
- ✓ Identify stormwater drainage systems along transportation corridors. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Work with local emergency response teams to ensure that any spills within the Zone II can be effectively contained. Review storm drainage maps with emergency response teams.
- ✓ Work with the Town and State to best manage stormwater in the Zone II. BMPs include street sweeping, vegetative swales, and regular catch basin inspection, cleaning and maintenance.

5. Presence of Oil or Hazardous Material Contamination Sites – The Zone IIs for Yarmouth's wells contain DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the maps as Release Tracking Numbers 4-0012139, 40012473, 40014213, 40014515, and 4-0014582. Refer to the attached maps and Appendix B for more information on these sites, and for information on DEP Tier Classified Oil and/or Hazardous Material Release Sites within the Zone IIs for the Yarmouth's wells.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

6. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a reservoir. Currently, the Town of Yarmouth has a groundwater protection bylaw that meets DEP's Groundwater Protection regulations 310 CMR 22.21. A Wellhead Protection Plan coordinates community efforts, identifies

protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP's guidance, "Developing a Local Wellhead Protection Plan".
- ✓ Coordinate efforts with the Towns of Barnstable and Dennis to include Yarmouth's source protection areas in local wellhead protection controls. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ If local controls do not regulate floor drains, be sure to include floor drain controls that meet 310 CMR 22.21(2).
- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the Zone II are included in Table 2. Refer to Table 2 and Appendix A for more information about these land uses.

Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES Well #2 (03G), Well #13 (13G), Well #14 (14G), Well #18 (18G), Well #19 (19G), Well #20 (20G), Well #23 (23G), Well #24 (24G), Well #22 (22G), Well #10 (11G), Well #11 (12G), Well # (09G), Well #4 (05G)	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO Well #1M (01G), Well #1 (02G), Well #3 (04G), Well #17 (17G), Well #15 (15G), Well #16(16G), Well #21(21G), Well #9 (10G), Well #6 (07G), Well #7 (08G)	To the extent possible, remove prohibited activities in Zone I to comply with DEP's Zone I requirements. Investigate options for gaining ownership or control of the Zone I.
Are the Zone Is posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone Is regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	YES Well #2 (03G), Well #13 (13G), Well #14 (14G), Well #18 (18G), Well #19 (19G), Well #20 (20G), Well #23 (23G), Well #24 (24G), Well #22 (22G), Well #10 (11G), Well #11 (12G), Well # (09G), Well #4 (05G)	Monitor for any new non-water supply activities in Zone I, and investigate options for removing these activities.
	NO Well #1M (01G), Well #1 (02G), Well #3 (04G), Well #17 (17G), Well #15 (15G), Well #16(16G), Well #21(21G), Well #9 (10G), Well #6 (07G), Well #7 (08G)	Monitor prohibited activities in Zone I, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have local controls that meet Wellhead Protection Regulations 310 CMR 22.21(2)?	YES	The Town's bylaw meets DEP's requirements for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	Unknown	Work with the Towns of Barnstable and Dennis to encourage them to adopt local controls that include Yarmouth's wellhead protection area.
Planning		
Does the PWS have a wellhead protection plan?	NO	Develop and implement a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish a committee with representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	Some	Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial uses within the Zone IIs.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Actively enforcing existing wellhead protection control
- Purchasing land within the wellhead protection areas

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone IIs and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Develop and implement a Wellhead Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3 and the Key Issues above. DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone IIs. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Regulated Facilities within the Water Supply Protection Area
- B. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- C. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Isabel Collins in DEP's SERO at (508) 946-2726 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.